



Transportation Synthesis Report

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Best Practices for Promoting Older Driver Safety

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Transportation Synthesis Reports (TSRs) are brief summaries of currently available information on topics of interest to WisDOT technical staff in highway development, construction and operations. Online and print sources include NCHRP and other TRB programs, AASHTO, the research and practices of other state DOTs, and related academic and industry research.

Request for Report

In 2000, 35 million Americans, or 12.4 percent of the total U.S. population, were older than 65, and almost 4.5 million (or 1.6 percent of the total population) were older than 85. By 2030, the number of older Americans will more than double; nine million will be older than 85. Almost all of these seniors will have been licensed drivers for most of their lives, including many too disabled to walk far or use conventional public transportation. Seniors in the future will be even more dependent on the car than today's elderly.¹

¹*The Mobility Needs of Older Americans: Implications for Transportation Reauthorization*, The Brookings Institution Series on Transportation Reform, July 2003. Page 1: Introduction.
http://www.brookings.edu/dybdocroot/es/urban/publications/20030807_Rosenbloom.pdf

There are important consequences of the changing demographics in our driving population. Traffic volumes will increase, problems with congestion will become more widespread, and the demands on drivers will grow significantly beyond present-day operating conditions. There will be a steadily increasing proportion of drivers who experience declining vision; slowed decision-making and reaction times; exaggerated difficulty when dividing attention between traffic conflicts and other important sources of motorist information; and reductions in strength, flexibility, and general fitness.²

²*Highway Design Handbook for Older Drivers and Pedestrians*, Publication No. FHWA-RD-01-103, May, 2001. Scroll down to Preface. <http://www.tfhrc.gov/humanfac/01103/coverfront.htm>

The increasing number of older drivers using the nation's highways in the decades ahead will pose many challenges to state DOTs charged with ensuring both system safety and operational efficiency. The WisDOT Bureau of Transportation Safety asked the RD&T Program to identify innovative practices to promote transportation safety for older drivers, especially in the areas of education, licensing and enforcement.

Summary

We mined the Web sites of national transportation agencies including USDOT, FHWA, AASHTO and the Transportation Research Board, and the Web sites of other state DOTs including Iowa, Kansas, Michigan, Ohio, Oregon and Pennsylvania. We also conducted a broader topical search of the Internet. We learned that a number of agencies are quite active in education efforts. Primary themes include: older driver physical fitness; refreshment of driver skills and traffic control knowledge; impairment and its effects; facing the facts; reexamination; license restriction and enforcement; and alternative transportation. State DOTs are using tools such as brochures and workbooks to discuss these themes with older drivers, their family and friends. Many states are currently reexamining their licensing policies with regard to older drivers. Under legislative mandate, Oregon DMV is pioneering a mandatory medical referral program that is based on assessment of a driver's cognitive and functional abilities in relation to driving. (See **State Practices**, below.)

The National Highway Traffic Safety Administration (NHTSA) has an older driver program that focuses on education and enforcement issues to keep older people safely mobile. The Web site and related helpful links can be viewed at <http://www.nhtsa.dot.gov/people/injury/olddrive/index.html>. NHTSA is also conducting studies to investigate national criteria for medical evaluation for driver licensure (http://www.aahp.org/links/NHTSA_Site/older_driver.html), and has published a summary of state reporting requirements and practices (<http://www.nhtsa.dot.gov/people/injury/olddrive/FamilynFriends/state.htm>).

We looked overseas for additional perspective. Transportation officials in Australia have released new medical standards for licensing drivers of private and commercial vehicles, maintaining that driver health is an important consideration in road safety. Also, the European Conference of Ministers of Transport has recommended policies to increase accessibility and safety for older people. The themes include driver evaluation and training programs, and the importance of education and publicity. (See **Overseas**, below.)

In the course of our research, we also located several online publications that address additional facets of older driver safety. We list them under **Resources**, below.

State Practices

Iowa

A Practical Guide for Senior Drivers Workbook

<http://www.dot.state.ia.us/mvd/ods/senior.pdf>

This IDOT publication contains exercises designed to refresh readers' knowledge of safe driving rules and practices. The workbook includes self-test questions regarding Iowa law, safe driving rules and the meaning of signs.

Driving with Diminished Skills

http://www.dot.state.ia.us/pdf_files/diminished_driving.pdf

This IDOT brochure alerts readers to the warning signs of dementia-impaired driving, suggests ways that family members can cut back the impaired person's driving, and discusses license renewal and reexamination for older drivers.

Report of the Iowa Safe Mobility Decisions for Older Drivers Forum [Section 3: Resources]

http://www.iowasms.org/pdfs/olderdriversforum/odf_sec3_resources.pdf

Many resources from Iowa, national agencies, service providers, and other states are listed in this section of the report, and include videos, references and agencies. (A brief summary of the forum's activities may be viewed at: http://www.dot.state.ia.us/local_systems/mailling/2003/august/older_dr_forum.pdf).

Iowa Highway Safety Management System (SMS) -- Toolbox

Iowa SMS is a diverse partnership of highway safety practitioners in engineering, enforcement, education and emergency services dedicated to reducing the number and severity of crashes on Iowa's roadways.

Toolbox Chapter 8: *Sustaining Safe Mobility in Older Drivers*

<http://www.iowasms.org/pdfs/toolbox/chapter08.pdf>

The strategies presented in the Toolbox resource represent a range of alternatives for legislators, department or agency directors, local governments and citizen groups to consider when they elect to address a specific highway safety concern. Topics addressed in Chapter 8 include: transportation options for older Iowans (page 8-5); potential strategies for legislation, policy, enforcement, education and public awareness, design and technology (pages 8-6 to 8-9); and successes and strategies implemented (page 8-10).

Kansas

Comprehensive Assessment of Needs and Practices Related to Traffic Control for Older Drivers

Project abstract: <http://rip.trb.org/browse/dproject.asp?n=5503>

The goal of this research is to develop some practical recommendations for improving safety for older drivers through improved traffic control practices. Recommended improvements may relate to the design of status signage (for example, sign size, font type, font size etc.), sign placement (for example, the consequences of widening a shoulder, thus moving signs farther from the pavement edge), retroreflectivity or maintenance practices.

Michigan

How's My Driving? Simple Tips for maintaining driving skills

http://www.michigan.gov/documents/SeniorDriving_49110_7.rev.pdf

Personnel from the Michigan State Police Third District developed this brochure to educate senior drivers, their families and friends. Partnerships were created with several agencies to help address all issues facing older drivers from eyesight and driving fitness to transportation alternatives and needed resources.

Driving for Life- A Guide for Older Drivers and Their Families

http://www.michigan.gov/documents/Older_Driver2_38985_7.pdf

Produced by the Michigan Department of State, this brochure provides suggestions for vision care and route planning, and for taking a defensive driving class to refresh one's knowledge of safe driving practices and learn about new traffic control and roadway design features. The brochure also describes the process for friends or family to refer an unsafe driver to the department for reexamination, and what the reexamination process involves for the participant. There are tips for finding alternative modes of transportation.

Elderly Mobility Workgroup

Connections- 2002 Annual Evaluation Report, Michigan Office of Highway Safety Planning

http://www.michigan.gov/documents/41622-OHSP_Annual_63667_7.pdf

Scroll to page 39, **Elderly Mobility**. The Elderly Mobility Workgroup, comprised of traffic safety partners from state, local, public and private organizations, and OHSP, meets quarterly to review the progress of implementation of recommendations made to the Governors Traffic Safety Advisory Commission, formerly the Michigan State Safety Commission. A major accomplishment has been the development and presentation of the Older Driver Assessment Took Kit around the state. The Tool Kit educates local communities about typical older driver safety problems, inventories their community's specific safety issues, and develops a local plan of action to improve older driver safety. The Toolkit is available online at <http://www.townsafety.com/actsweb>. Sign in as a guest for Michigan and click login. At the bottom of the ACTS home page you will find a hyperlink to the kit.

Ohio

Field Evaluation of Unlighted Overhead Guide Signs Using Older Drivers

Project abstract: <http://rip.trb.org/browse/dproject.asp?n=7734>

Ohio University will conduct a panel field evaluation using a number of unlighted overhead guide signs constructed from a variety of retroreflective sheeting materials to determine their suitability and acceptance by older drivers (age 65 to 75, 10 male, 10 female) at night.

Transportation Issues for Older Adults

Ohio Department of Aging- Development Brief #3 (Transportation)

<http://www.goldenbuckeye.com/devbriefs/brief3.pdf>

(Scroll to page 2, "Explore all available transportation resources")

A variety of funding sources may be tapped to provide transportation for older adults, including federal, state, county and city government, foundations, businesses, churches and other entities. Two publications of the Ohio DOT's Office of Transit provide a comprehensive index of resources in the state. *The Status of Public Transit in Ohio* (http://www.dot.state.oh.us/ptrans/PDF_FILES/Publications/2001SOTtxtonly.pdf) summarizes ODOT operating and financial information for the state's rural and urban transit systems; it also includes a description of the services and programs administered by the Office of Transit, and a list of transit agencies and organizations in the state. *The Ohio Community Transportation Resource Directory* (http://www.dot.state.oh.us/ptrans/Other_PT_Programs/resource%20directory.htm) provides an inventory of federal, state and local resources available to support community transportation, providing operating funds, grant writing, planning, capital purchases and training.

The Office of Transit also directly administers several grant programs that benefit older adults, including:

- The Elderly & Disabled Transit Fare Assistance Program. This program encourages transit systems to offer reduced fares for the elderly and people with disabilities by replacing a portion of the revenue lost due to reducing the fares for this population;
- The Specialized Transportation Program. This program provides federal funds for the purchase of vehicles and other equipment to support transportation services for the elderly and people with disabilities where existing transportation is unavailable, inappropriate or insufficient;
- The Ohio Coordination Program. This program provides funding and technical assistance to counties interested in promoting cooperation and coordination among transit purchasers and providers.

Oregon

The Older Driver Advisory Committee (Recommendations)

http://www.odot.state.or.us/dmv/pdf/ODAC_Final_Recommendation_a.pdf

This report constitutes the recommendations of the Older Driver Advisory Committee to ODOT Driver and Motor Vehicle Services. The 1999 Oregon Legislature asked ODOT to study the effects of aging on driving ability when it passed House Bill 2446. This bill authorized ODOT to convene an advisory committee to participate in the study and to make recommendations to the department.

Cost-Benefit Analysis of Identifying Impaired Older Drivers

FY 2004 Research Problem Statement

http://www.odot.state.or.us/tddresearch/problem_stat_04/traffic_safety_human/Impaired%20Older%20Driver%20Id ent.pdf

This project will provide objective cost-benefit data regarding the implementation of one of the Older Drivers Advisory Committee recommendations: the adoption of a new computerized visual processing screening tool called the Useful Field of View (UFOV). Such data can aid in the decision of whether or not this is a cost-effective intervention for the identification of at-risk older drivers that should be adopted by the DMV in Oregon.

Medically At-Risk Driver Program; Effectiveness Evaluation

ODOT Driver and Motor Vehicle Services Division

http://www.odot.state.or.us/tddresearch/problem_stat_04/traffic_safety_human/medically%20at%20risk%20driver%20program%20eval.pdf

Many states are currently reexamining their licensing policies with regard to older drivers. Under legislative mandate, Oregon DMV is pioneering a mandatory medical referral program that is based on assessment of a driver's cognitive and functional abilities in relation to driving. In contrast to other states, Oregon's referral system is neither based on age nor medical diagnosis/condition, but rather on how the impairment affects driving. Other states will be looking to Oregon to see what impact this new medical reporting system will have on public safety.

A public information brochure about the program may be viewed at:

<http://www.odot.state.or.us/forms/dmv/6889.pdf>

An ODOT news release about the program may be viewed at:

<http://www.odot.state.or.us/comm/news/2003012302.htm>

Pennsylvania

Study Legibility of Road Sign Typography and Format

Project abstract: <http://rip.trb.org/browse/dproject.asp?n=4756>

The thick stroke design of the Series E(M) highway alphabet, both upper and lower case, when used with newly-developed, high-brightness signing materials results in a phenomenon known as irradiation or halation. Irradiation has become a problem because the reflective letter material is now so bright that it bleeds into the letter form's open spaces, creating a blobbing effect that reduces legibility. This irradiation effect is particularly troubling for older drivers. To reduce the effects of this phenomenon, a new highway font was developed. The basic principle behind the design of the new font, which has been named Clearview, was the opening of the interior spaces of the letter forms to allow irradiation to occur without diminishing the distance at which the alphabet could be read. As a result of field research conducted at the Pennsylvania State University's Pennsylvania Transportation Institute using older travelers and high-brightness materials, nighttime legibility distances for the Clearview font are 16 percent greater than Standard Highway Series E(M). With 15-inch letter height, this could increase legibility distance by 150 feet, allowing drivers almost two seconds longer to read highway guide signs.

Overseas

Report on Transport and Ageing of the Population

European Conference of Ministers of Transport (ECMT) Recommendations April 2001.

<http://www.seniordrivers.org/clearinghouse/pdf/ECMT2001.pdf>

Policies to Increase Accessibility and Safety for Older People:

"To meet the needs of older people in the coming five decades, we will have to develop a comprehensive strategy -- one which encompasses all the policy areas which affect the travel of older people." Themes discussed in this report include: making the transport network user friendly and accessible, specific needs for pedestrians, specific needs for cyclists, public transport, streets and highways, effective driver evaluation and training programs, comprehensive transport alternatives, and the role of education and publicity.

Medical standards for Australian drivers

Each year, more than 1,700 drivers are killed and 23,000 seriously injured on Australian roads. Transportation officials have released new medical standards for licensing drivers of private and commercial vehicles, maintaining that driver health is an important consideration in road safety. Link to the article in the Austroads E-newsletter: <http://www.austroads.com.au/generalnews/current.html> - news-aftd. Link to the Assessing Fitness to Drive Web site: <http://www.austroads.com.au/aftd.html>.

Resources

Administration on Aging/Federal Transit Administration Memorandum of Understanding, Jan. 9, 2003

http://www.aoa.gov/press/multimed/photos/Asst_Sec_Visits/2003/01_Jan/01_09/01_09.asp

Assistant Secretary for Aging Josefina Carbonell and Federal Transit Administrator Jennifer Dorn signed a Memorandum of Understanding to increase coordination of transportation services for older adults. The memorandum outlines activities in five areas: public awareness and outreach, data collection and promising practices, technical assistance, stakeholder input, and local and state transportation plan development. Carbonell notes that the overall goal of the memorandum activities is to make it easier for local transportation providers to serve older people and help them remain independent and participating in their communities. (Link to the full report from this site.)

States Find Ways to Aid Older Drivers

AARP Bulletin Online, September 2001.

<http://www.aarp.org/bulletin/yourlife/Articles/a2003-06-26-olderdrivers.html?page=1>

As the number of older Americans climbs, some states are moving aggressively to improve driving conditions on the nation's roads and help older motorists maintain their driving skills.

Effects of State Laws to Reduce Auto Fatalities

University Transportation Center for Alabama, 2002.

http://utca.eng.ua.edu/projects/final_reports/01230-Grabowski-f-rpt-16Jan03.pdf

This report uses state-level data from the 1985 through 2000 Fatality Analysis Reporting System to examine the effects of changes in state laws dealing with seatbelt use, speed limits, driving while intoxicated (DUI), and license renewal on fatalities among drivers and others 65 and older. Results suggest that strengthening license renewal provisions for older drivers may have been effective.

Moving Beyond This Guide: Research and Planning for Safe Transportation for the Older Population [Chapter 10]

American Medical Association (AMA)

<http://www.ama-assn.org/ama1/pub/upload/mm/433/chapter10.pdf>

In this chapter, the AMA advocates for coordinated efforts among the medical and research communities, policy makers, community planners, the automobile industry and government agencies to achieve the common goal of safe transportation for the older population.

Improving Public Transit Options for Older Persons

TCRP Report 82: Volume 1 Handbook, and Volume 2 Final Report; 2002.

http://www4.trb.org/trb/onlinepubs/nsf/web/tcrp_report_82toc

This research project examines the population of interest in detail, identifies barriers to mobility and methods to overcome them, and details best practices from transportation programs designed to improve travel opportunities for older persons. The objective was to prepare a workbook for transportation providers and planners that presents exemplary transportation services and proposes innovative transportation alternatives to enable older persons in the United States to maintain their independence.

Turner-Fairbank Highway Research Center- Human Centered Systems Research

Designs that Work for Older Drivers

<http://www.tfhrcc.gov/humanfac/hf.htm>

Two new documents were published in 2001 regarding highway design and older drivers. These replace previous editions published in 1998. The *Guidelines and Recommendations to Accommodate Older Drivers and Pedestrians* (<http://www.tfhrcc.gov/humanfac/01105/cover.htm>) have been developed specifically to provide practical guidance to engineers to accommodate the needs and functional limitations of an aging population of road users. In addition, a revised *Highway Design Handbook for Older Drivers and Pedestrians* (<http://www.tfhrcc.gov/humanfac/01103/coverfront.htm>) has been published. Both of these documents provide design guidelines for at-grade intersections, grade-separated interchanges, roadway curvature and passing zones,

construction/work zones and highway-rail grade crossings (passive). The Highway Design Handbook also contains rationale and supporting evidence for each recommendation based on human factors and highway safety research. In addition, the Office of Safety holds a one-day Older Driver Workshop based on these documents. The workshop has been developed to assist traffic engineers in accommodating older drivers' needs and capabilities. For more information about the Office of Safety's Older Driver Program and the Older Driver Workshop, see <http://www.fhwa.dot.gov/safety/programs/olderdriver.htm>.